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Application Number: 10/532,178,
Amendment dated: March 3, 2009,
Reply to Office Action of: October 3, 2008,

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 – 16 (Canceled)

17 (New) A method for utilization of within breath variability (WBV) of the heart sounds for assessing pressure changes in the cardio/pulmonary system, comprising:

- identifying the cyclic breathing activity and cyclic heart beating sounds;
- segmenting said raw respiratory and said raw heart beating sounds;
- classifying said segments of said raw respiratory and said raw cardiac sounds;
- extracting time dependent features of said classes;
- comparing features of said classes;
- determining the significance of the deviation of a set of said features from a respective set of baseline values;
- and

wherein said heart beating sounds are selected from the group

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including first heart sound, second heart sounds, and any
combinations thereof, and

wherein said breathing is selected from the group including
inspiration, expiration, the pauses between them, and any
combinations thereof, and

wherein said cardio/pulmonary system is selected from the
group including cardio vascular system, lungs and the thorax.

18 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 1
wherein pressure changes in the cardio/pulmonary system are changes selected from
the group of changes including intrathoracic pressure and hemodynamic pressure.

19 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 2
wherein intrathoracic pressure changes are caused by any cause selected from the
group including changes in air way resistance, asthma and resistive breathing.

20 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 3,
wherein changes in said intrathoracic pressure are caused by changes in compliance.

21 (New) A method for utilization of within breath variability (WBV) of the heart

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sounds for assessing pressure changes in the cardio/pulmonary system as in claim 4
wherein changes in said compliance are caused by congestive heart failure.

22 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 3
wherein changes in said intrathoracic pressure are caused by positive pressure
artificial ventilation.

23 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 2
wherein changes in said hemodynamic pressure are caused by shock.

24 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 1
wherein pressure changes in the cardio/pulmonary system are caused by changes
selected from the group including heart mechanics changes, cardiac medications and
cardiac contractility, and any combination thereof.

25 (New) A method for utilization of within breath variability (WBV) of the heart
sounds for assessing pressure changes in the cardio/pulmonary system as in claim 1
wherein said WBV is determined by the amplitude of heart sounds selected from the
group including the second and first heart sound.

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26 (New) A method for utilization of within breath variability (WBV) of the heart sounds for assessing pressure changes in the cardio/pulmonary system as in claim 1 wherein said WBV is determined by calculating the ensemble average in the domains selected from group of domains including time domain and frequency domain.

27 (New) A method for utilization of within breath variability (WBV) of the heart sounds for assessing pressure changes in the cardio/pulmonary system as in claim 1 wherein said WBV is determined by measuring the changes selected from a group of changes including the frequency contents of the heart sound and morphology changes in the heart sound.

28 (New) A system for utilization of within breath variability (WBV) of the heart sounds for assessing pressure changes in the cardio/pulmonary system, comprising:

- at least one means for collecting heart beating sounds;
- means for collecting cyclic sound of the respiratory system, and
- a means for processing said sounds, and

wherein said processing comprises:

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- identifying the cyclic breathing activity and cyclic heart beating sounds;
- segmenting said raw respiratory and said raw heart beating sounds;
- classifying said segments of said raw respiratory and said raw cardiac sounds;
- extracting time dependent features of said classes;
- comparing features of said classes, and
- determining the significance of the deviation of a set of said features from a respective set of baseline values.